

APPENDIX A
EXCERPTS FROM TPDES PERMIT

[U.S. v. ConocoPhillips (Borger, TX) Consent Decree]



TPDES PERMIT NO. W00001064000
[For TCEQ office use only -
EPA I.D. No. TX0009148]

Q3

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P. O. Box 13087
Austin, Texas 78711-3087

This permit supercedes and replaces
TCEQ Permit No. 01064, issued on
April 15, 1994 and NPDES Permit No.
TX0009148, issued on August 11, 1995.

PERMIT TO DISPOSE OF WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

ConocoPhillips Company

whose mailing address is

P.O. Box 271
Borger, Texas 79008-0271

is authorized to treat and dispose of wastes from the Borger Refinery & NGL Center, which consists of a petroleum refinery (SIC 2911) and natural gas liquids processing center (SIC 1321)

located adjacent to State Highway 119 approximately one mile north of the intersection of State Highway 246 and State Highway 119 near the City of Borger, Hutchinson County, Texas

to an unnamed tributary of Dixon Creek; thence to Dixon Creek; thence to the Canadian River Below Lake Meredith in Segment No. 0101 of the Canadian River Basin

only according to effluent limitations, monitoring requirements and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight three years from the date of issuance.

ISSUED DATE: **JAN 30 2007**

RECEIVED

FEB 21 2007

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

- During the period beginning upon date of issuance and lasting through date of expiration, the permittee is authorized to discharge treated process wastewater, cooling tower blowdown, boiler blowdown, water treater blowdown, cooling water, water system leaks, steam condensate, reverse osmosis reject water, storm water runoff, and sanitary wastewater subject to the following effluent limitations:

The daily average flow of effluent shall not exceed 7.1 million gallons per day (MGD). The total volume discharged during any 24-hour period shall not exceed 9.0 million gallons.

Effluent Characteristic	Discharge Limitations			Minimum Self-Monitoring Requirements	
	Daily Avg lbs/day	Daily Max lbs/day	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow (MGD)	(Report)	(Report)	N/A	Continuous	Record
Biochemical Oxygen Demand (5-day)	934	1841	65	3/week	Composite
Total Suspended Solids	1629	2513	65	1/day	Composite
Chemical Oxygen Demand	7386	13,867	350	3/week	Composite
Oil and Grease	364	649	20	3/week	Grab
Ammonia-nitrogen	237	355	15	3/week	Composite
	4.0 mg/L	6.0 mg/L	15	3/week	Composite
Sulfides	9.2	19.5	0.4	3/week	Grab
Total Chromium	12.8	29.9	0.75	3/week	Composite
Hexavalent Chromium	0.74	1.57	0.037	2/month	Composite
Selenium, Total(*1)	1.32	2.63	0.17	1/week	Composite
Fecal Coliform	<200 colonies/100 mL (*2)			(*2)	(*2)
Phenols	6.1	12.4	0.4	3/week	Grab
Acenaphthene	0.72	1.92	N/A	1/year	Composite
Acrylonitrile	3.12	7.87	N/A	1/year	Composite
Benzene	1.20	4.42	N/A	1/year	Composite
Carbon Tetrachloride	0.59	1.24	N/A	1/year	Composite
Chlorobenzene	0.49	0.91	N/A	1/year	Composite
1,2,4-Trichlorobenzene	2.21	4.55	N/A	1/year	Composite
Hexachlorobenzene	0.08	0.17	N/A	1/year	Composite
1,2-Dichloroethane	2.21	6.86	N/A	1/year	Composite
1,1,1,-Trichloroethane	0.68	1.76	N/A	1/year	Composite
Hexachloroethane	0.68	1.76	N/A	1/year	Composite
1,1-Dichloroethane	0.72	1.92	N/A	1/year	Composite
1,1,2-Trichloroethane	0.68	1.76	N/A	1/year	Composite

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

Outfall Number 001

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>			<u>Minimum Self-Monitoring Requirements</u>	
	Daily Avg lbs/day	Daily Max lbs/day	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Benzo(k)fluoranthene	0.72	1.92	N/A	1/year	24-hr Composite
Chrysene	0.17	0.35	N/A	1/year	24-hr Composite
Acenaphthylene	0.72	1.92	N/A	1/year	24-hr Composite
Anthracene	0.72	1.92	N/A	1/year	24-hr Composite
Fluorene	0.72	1.92	N/A	1/year	24-hr Composite
Phenanthrene	0.72	1.92	N/A	1/year	24-hr Composite
Pyrene	0.81	2.48	N/A	1/year	24-hr Composite
Tetrachloroethylene	0.72	1.82	N/A	1/year	24-hr Composite
Toluene	0.85	2.60	N/A	1/year	24-hr Composite
Trichloroethylene	0.68	1.76	N/A	1/year	24-hr Composite
Vinyl Chloride	3.38	8.72	N/A	1/year	24-hr Composite
Whole Effluent Toxicity (WET) limit 100% (PCS/STORET 22414) ²					
<u>Ceriodaphnia dubia</u> (7-Day chronic NOEC ^{1,2,3})	100% ⁴	100% ⁴	N/A	1/quarter	24-hr Composite
<u>Pimephales promelas</u> (7-Day chronic NOEC ^{1,2,3})	100% ⁴	100% ⁴	N/A	1/quarter	24-hr Composite

¹ Beginning upon permit issuance, the permittee shall report the effluent No Observed Effect Concentration (NOEC).

² Compliance with the WET limit of 100% effluent and reporting of PCS/STORET Code 22414 is required upon permit issuance.

³ The NOEC is defined as the greatest effluent dilution below which no significant lethality is demonstrated. Significant lethality is defined as a statistically significant difference, at the 95% confidence level, between the survival of the test organism in a specified effluent dilution when compared to the survival of the test organism in the control.

⁴ Report the NOEC value for survival.

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range are permitted. An excursion is an unintentioned and temporary incident in which the pH value of the wastewater exceeds the range set forth on Page 2c. A pH excursion is not a violation and a non-compliance report is not required for pH excursions provided:

- (a) The excursion does not exceed the range of 5-11 standard pH units,
 - (b) The individual excursion does not exceed 60 minutes,
 - (c) The sum of all excursions does not exceed 7 hours and 26 minutes in any 31 day period.
3. Monitoring results shall be provided at the intervals specified in the permit. For pollutants which are monitored annually, effluent reports shall be submitted in September of each year. For pollutants which are monitored twice per year, the first effluent report shall be submitted six months after the date of permit issuance and subsequent reports every six months thereafter. For pollutants which are monitored four times per year, the first effluent report shall be submitted three months after the date of permit issuance and subsequent reports every three months thereafter.
 4. There is no mixing zone established for this discharge to an intermittent stream via Outfall 001. Acute toxic criteria apply at the point of discharge.
 5. Temporary Variance to Texas Surface Water Quality Standards
 - a. In accordance with 30 TAC §307.2(d)(4), the permittee is granted a temporary variance to the existing criteria for selenium in the Texas Surface Water Quality Standards (TSWQS) (30 TAC Chapter 307) for Dixon Creek upstream of Segment No. 0101 of the Canadian River Basin.
 - b. The permittee shall complete a study in accordance with the methods and plan approved by the EPA and TCEQ. The purpose of the study will be to develop site-specific criteria for selenium.

Upon completion of the study, the permittee may apply for a major amendment to this permit to request effluent limitations that are consistent with the new site-specific criteria. The Commission will consider approval of the amended permit when the proposed site-specific criteria are approved by EPA and the TCEQ. If approval of the site-specific criteria is delayed beyond the expiration date of the permit, the permittee may apply for a variance extension in accordance with 30 TAC Chapter 307.2(f).

 - c. The following effluent limitations for total selenium will become effective immediately in a reissued permit if the permittee fails to conduct a site-specific study or if the site-specific criteria are not approved by EPA Region VI or the TCEQ. If the site-specific criteria are not approved by EPA or the TCEQ, the permittee may apply for a permit schedule to meet the following limits in accordance with 30 TAC § 307.2(f).

Pollutant	Daily Average (lbs/day)	Daily Maximum (lbs/day)	Single Grab mg/L
Selenium (total)	0.34	0.72	0.024

6. Under normal operating conditions, wastewaters from the North NGL Plant area are routed to the North Sump where oil is skimmed before the wastewater is pumped to the wastewater treatment plant and discharged via Outfall 001. Under normal operating conditions, wastewaters from the West NGL Plant area are routed to the South Sump then pumped to the wastewater treatment plant and discharged via Outfall 001. During storm events, the entire flow that enters the North or South Sumps can overwhelm the transfer pump capacity. When this

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occurs, the overflow from the North Sump flows into a drop basin then to a 500,000 gallon tank. Overflow from the South Sump flows into grit trap then to a 500,000 gallon tank. Oil from the grit trap is removed and pumped to storage tanks for recovery. Wastewater from the 500,000 gallon tanks is then pumped to the wastewater treatment plant and discharged via Outfall 001.

If, during a storm event, the pumps in the 500,000 gallon tanks are also overwhelmed, the water level in the drop basin and grit trap rises until discharge occurs at weirs in the drop basin and grit trap. The weirs at the drop basin are defined as Outfall 003, and the weirs at the grit trap are defined as Outfall 002. The discharges from Outfall 002 and 003 are mostly storm water, but also contain incidental amounts of industrial wastewater from the NGL Plant area. These outfalls authorize the intermittent discharge of incidental industrial wastewater during heavy storm event.

7. For Outfall 001, the logarithmic average (geometric mean) of the fecal coliform density content shall not exceed 200 colonies/100 ml in any one month from a representative sampling of not less than 5 samples, as determined by either multiple-tube fermentation or membrane filter techniques, nor shall more than 10 percent of the total sample in any month exceed 400 colonies/100 ml.
8. The permittee is hereby placed on notice that this permit may be reviewed by the Texas Commission on Environmental Quality after the completion of any new intensive water quality survey on Segment 0101 of the Canadian River Basin and any subsequent updating of the water quality model for Segment 0101, in order to determine if the limitations and conditions contained herein are consistent with any such revised model. The permit may be amended, pursuant to 30 TAC Sections 305.62, as a result of such review.

The permit may also reopened and amended if the site-specific study for selenium or changes to the selenium criteria warrant a change to the permit. The permit may be amended, pursuant to 30 TAC Sections 305.62.

CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this Section apply to Outfall 001 for whole effluent toxicity testing (biomonitoring).

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures and quality assurance requirements specified in this Part of the permit and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013), or the most recent update thereof:
 - 1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0 or the most recent update thereof). This test should be terminated when 60% of the surviving adults in the control produce three broods. This test shall be conducted once per quarter.
 - 2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0 or the most recent update thereof). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit. All test results, valid or invalid, must be submitted as described below.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These additional effluent concentrations are 32%, 42%, 56%, 75%, and 100% effluent. The critical dilution, defined as 100% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.
- d. The permittee shall comply with the No Observed Effect Concentration (NOEC) effluent limitation for survival, for both test species, for survival of not less than 100 % upon permit issuance (see the EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS section). The survival NOEC is defined as the greatest effluent dilution at or below which no significant lethality is demonstrated. Significant lethality is defined as a statistically significant difference, at the 95% confidence level, between the survival of the test organism in a specified effluent dilution when compared to the survival of the test organism in the control.
- e. The conditions of this item are effective beginning with the effective date of the WET limit. If the permittee fails to pass the survival endpoint at the critical dilution, the permittee shall be considered in violation of this permit limit and the testing frequency for the species in violation of the NOEC effluent limitation will increase to monthly until such time compliance is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in Part 1.b. of this Section.

The permittee will be referred to the Enforcement Division upon failure of any test during the period of

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increased testing. The permittee shall submit the results of the initial failed test and each subsequent monthly test as required in Part 3 (Reporting) of this Section. WET limit test results shall be included on the Discharge Monitoring Reports sent to the Database and Administration Team (MC-224).

2. Required Toxicity Testing Conditions

a. **Test Acceptance** - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fails to meet any of the following criteria:

- 1) a control mean survival of 80% or greater;
- 2) a control mean number of water flea neonates per surviving adult of 15 or greater;
- 3) a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;
- 4) a control Coefficient of Variation percent (CV%) of 40 or less between replicates for the young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints in the fathead minnow growth and survival test.
- 5) a critical dilution CV% of 40 or less for young of surviving females in the water flea reproduction and survival test; and the growth and survival endpoints for the fathead minnow growth and survival test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test.
- 6) a Percent Minimum Significant Difference of 47 or less for water flea reproduction;
- 7) a Percent Minimum Significant Difference of 30 or less for fathead minnow growth.

b. **Statistical Interpretation**

- 1) For the water flea survival test, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be Fisher's Exact Test as described in the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013), or the most recent update thereof.
- 2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the methods described in the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013), or the most recent update thereof.
- 3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test results are interpreted and reported correctly. The EPA manual, "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004) provides guidance on determining the validity of test results.
- 4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.

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- 5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is herein defined as a statistically significant difference at the 95% confidence level between the survival, reproduction, or growth of the test organism(s) in a specified effluent dilution compared to the survival, reproduction, or growth of the test organism(s) in the control (0% effluent).
- 6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3 above and a full report will be submitted to the Water Quality Standards Team
- 7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The above-referenced guidance manual will be used when making a determination of test acceptability
- 8) The Water Quality Standards Team will review test results (i.e., Table 1 and Table 2 forms) for consistency with established TCEQ rules, procedures, and permit requirements.

c. Dilution Water

- 1) Dilution water used in the toxicity tests shall be the receiving water collected at a point upstream of the discharge as close as possible to the discharge point, but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall; (a) substitute a synthetic dilution water that has a pH, hardness, and alkalinity similar to that of the closest downstream perennial water unaffected by the discharge, or (b) utilize the closest downstream perennial water unaffected by the discharge.
- 2) Where the receiving water proves unsatisfactory as a result of preexisting instream toxicity (i.e. fails to fulfill the test acceptance criteria of item 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
 - a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of item 2.a;
 - b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days);
 - c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3 of this Section.

The synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or a natural water in the drainage basin that is unaffected by the discharge, provided the magnitude of these parameters will not cause toxicity in a synthetic dilution water control that has been formulated to match the pH, hardness, and alkalinity naturally found in the receiving water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.

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d. Samples and Composites

- 1) The permittee shall collect a minimum of three flow-weighted 24-hour composite samples from Outfall 001. The second and third 24-hour composite samples will be used for the renewal of the dilution concentrations for each toxicity test. A 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportionally to flow, or a sample continuously collected proportionally to flow over a 24-hour operating day.
- 2) The permittee shall collect the 24-hour composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first 24-hour composite sample. The holding time for any subsequent 24-hour composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If flow from the outfall being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time, are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with daily renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Part 3 of this Section.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Water Quality Standards Team (MC 150) of the Water Quality Division. All DMRs, including DMRs with biomonitoring data, should be sent to the Water Quality Compliance Monitoring Team of the Enforcement Division (MC 224).

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this permit in accordance with the Report Preparation Section of "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition" (EPA-821-R-02-013), or the most recent update thereof, for every valid and invalid toxicity test initiated whether carried to completion or not. All full reports shall be retained for 3 years at the plant site and shall be available for inspection by TCEQ personnel.
- b. A full report must be submitted with the first valid biomonitoring test results for each test species and with the first test results any time the permittee subsequently employs a different test laboratory. Full reports need not be submitted for subsequent testing unless specifically requested. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit. All Table 1 reports must include the information specified in the Table 1 form attached to this permit.
 - 1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12 month period.
 - 2) Semiannual biomonitoring test results are due on or before July 20th and January 20th for

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biomonitoring conducted during the previous 6 month period:

- 3) Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th, for biomonitoring conducted during the previous calendar quarter.
- 4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.

c. Enter the following codes on the DMR for the appropriate parameters for valid tests only:

- 1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
- 2) For the water flea, Parameter TOP3B, report the NOEC for survival.
- 3) For the water flea, Parameter TXP3B, report the LOEC for survival.
- 4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for reproduction is less than the critical dilution; otherwise, enter a "0."
- 5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.
- 6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.
- 7) For the fathead minnow, Parameter TLP6C, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
- 8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.
- 9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.
- 10) For the fathead minnow, Parameter TWP6C, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
- 11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.
- 12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.

d. Enter the following codes on the DMR for retests only:

- 1) For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
- 2) For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

e. The permittee shall report the Whole Effluent Lethality values for the 30-day Average Minimum and the 7-day Minimum under Parameter No. 22414 on the DMR for the appropriate reporting period. If more than one valid test for a species was performed during the reporting period, the test NOECs will be averaged arithmetically and reported as the Daily Average Minimum NOEC for that reporting period. If more than one species is tested during the reporting period, the permittee shall report the lowest 30-day Average Minimum NOEC and the lowest 7-day Minimum NOEC for Whole Effluent Lethality. A valid

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test for each species must be reported on the DMR during each reporting period specified on Page 2 of this permit. Only one set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the lowest survival results for each species during the reporting period. All tests, including invalid tests and repeat tests, performed during the reporting period must be submitted for review.

TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Dates and Times
Composites
Collected

No. 1 FROM: _____ Date _____ Time _____ TO: _____ Date _____ Time _____

No. 2 FROM: _____ Date _____ Time _____ TO: _____ Date _____ Time _____

No. 3 FROM: _____ Date _____ Time _____ TO: _____ Date _____ Time _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving Water _____ Synthetic Dilution Water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

REP	Percent effluent (%)					
	0%	32%	42%	56%	75%	100%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Surviv. Mean						
Total Mean						
CV%*						
PMSD	Acceptable Range 13-47					

*coefficient of variation = standard deviation x 100/mean (calculation based on young of the surviving adults)

Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

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TABLE 1 (SHEET 2 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per adult significantly less ($p=0.05$) than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (100%): _____ YES _____ NO

PERCENT SURVIVAL

	Percent effluent (%)					
Time of Reading	0%	32%	42%	56%	75%	100%
24h						
48h						
End of Test						

2. Fisher's Exact Test:

Is the mean survival at test end significantly less ($p=0.05$) than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (100%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC/LOEC below :

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC reproduction = _____ % effluent

d.) LOEC reproduction = _____ % effluent

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TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times
Composites
Collected

No. 1 FROM: TO:

No. 2 FROM: TO:

No. 3 FROM: TO:

Test initiated: am/pm dateDilution water used: Receiving Water Synthetic Dilution Water

FATHEAD MINNOW GROWTH DATA

Effluent Concentration (%)	Average Dry Weight in milligrams in replicate chambers					Mean Dry Weight	CV%*
	A	B	C	D	E		
0%							
32%							
42%							
56%							
75%							
100%							
PMSD	Acceptable Range 12-30						

* coefficient of variation = standard deviation x 100/mean

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean dry weight (growth) at 7 days significantly less ($p=0.05$) than the control's dry weight (growth) for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (100%): YES NO

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TABLE 1 (SHEET 4 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW GROWTH AND SURVIVAL TEST

FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration (%)	Percent Survival in replicate chambers					Mean percent survival			CV%*
	A	B	C	D	E	24h	48h	7 day	
0%									
32%									
42%									
56%									
75%									
100%									

* coefficient of variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less ($p=0.05$) than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (100%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC/LOEC below:

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC growth = _____ % effluent

d.) LOEC growth = _____ % effluent

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24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this Section apply individually and separately to Outfall 001 for whole effluent toxicity testing (biomonitoring). No samples or portions of samples from one outfall may be composited with samples or portions of samples from another outfall.

1. Scope, Frequency and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this Section. Such testing will determine compliance with the Surface Water Quality Standard, 30 TAC §307.6(e)(2)(B), of greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.
- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests utilizing the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012), or the most recent update thereof:
 - 1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.
 - 2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is herein defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit. All test results, valid or invalid, must be submitted as described below.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. Except as discussed in item 2.b., the control and/or dilution water shall consist of a standard, synthetic, moderately hard, reconstituted water.
- d. This permit may be amended to require a Whole Effluent Toxicity (WET) limit, a Best Management Practice (BMP), Chemical-Specific (CS) limits, additional toxicity testing, and/or other appropriate actions to address toxicity. The permittee may be required to conduct additional biomonitoring tests and/or a Toxicity Reduction Evaluation (TRE) if biomonitoring data indicate multiple numbers of unconfirmed toxicity events.
- e. If the dilution series specified in the Chronic Biomonitoring Requirements includes a 100% effluent concentration, the results from those tests may fulfill the requirements of this Section; any tests performed in the proper time interval may be substituted. Compliance will be evaluated as specified in item a. The 50% survival in 100% effluent for a 24-hour period standard applies to all tests utilizing a 100% effluent dilution, regardless of whether the results are submitted to comply with the minimum testing frequency defined in item b.

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2. Required Toxicity Testing Conditions

- a. **Test Acceptance** - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
- b. **Dilution Water** - In accordance with item 1.c., the control and/or dilution water shall normally consist of a standard, synthetic, moderately hard, reconstituted water. If the permittee utilizes the results of a 48-Hour Acute test or a Chronic test to satisfy the requirements in item 1.c., the permittee may use the receiving water or dilution water that meets the requirements of item 2.a. as the control and dilution water.
- c. **Samples and Composites**
 - 1) The permittee shall collect one flow-weighted 24-hour composite sample from Outfall 001. A 24-hour composite sample consists of a minimum of 12 effluent portions collected at equal time intervals representative of a 24-hour operating day and combined proportional to flow, or a sample continuously collected proportional to flow over a 24-hour operating day.
 - 2) The permittee shall collect the 24-hour composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.
 - 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the 24-hour composite sample. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
 - 4) If the Outfall ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report required in Part 3 of this Section.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in any Part of this Section shall be submitted to the attention of the Water Quality Standards Team (MC 150) of the Water Quality Division. All DMRs, including DMRs with biomonitoring data, should be sent to the Water Quality Compliance Monitoring Team of the Enforcement Division (MC 224).

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this permit in accordance with the Report Preparation Section of "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-02-012), or the most recent update thereof, for every valid and invalid toxicity test initiated. All full reports shall be retained for three years at the plant site and shall be available for inspection by TCEQ personnel.
- b. A full report must be submitted with the first valid biomonitoring test results for each test species and with the first test results any time the permittee subsequently employs a different test laboratory. Full reports need not be submitted for subsequent testing unless specifically requested. The permittee shall

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routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit. All Table 2 reports must include the information specified in the Table 2 form attached to this permit.

- 1) Semiannual biomonitoring test results are due on or before January 20th and July 20th for biomonitoring conducted during the previous 6 month period.
 - 2) Quarterly biomonitoring test results are due on or before January 20th, April 20th, July 20th, and October 20th, for biomonitoring conducted during the previous calendar quarter.
- c. Enter the following codes on the DMR for the appropriate parameters for valid tests only:
- 1) For the water flea, Parameter TIE3D, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the fathead minnow, Parameter TIE6C, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
- d. Enter the following codes on the DMR for retests only:
- 1) For retest number 1, Parameter 22415, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For retest number 2, Parameter 22416, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

4. Persistent Mortality

The requirements of this Part apply when a toxicity test demonstrates significant lethality, here defined as a mean mortality of 50% or greater to organisms exposed to the 100% effluent concentration after 24-hours.

- a. The permittee shall conduct two additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for two weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These additional effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour. The retests shall also be reported on the DMRs as specified in Part 3.d.
- b. If one or both of the two retests specified in item 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5 of this Section.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a General Outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and/or effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, the permittee shall submit a TRE

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Action Plan and Schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A Toxicity Reduction Evaluation is a step-wise investigation combining toxicity testing with physical and chemical analysis to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE Action Plan shall lead to the successful elimination of significant lethality for both test species defined in item 1.b. As a minimum, the TRE Action Plan shall include the following:

- 1) **Specific Activities** - The TRE Action Plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and/or alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled, "Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures" (EPA/600/6-91/003), or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled, "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;
 - 2) **Sampling Plan** - The TRE Action Plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/ identification/ confirmation procedures, and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant(s) and/or source(s) of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and/or suspected pollutant(s) and/or source(s) of effluent toxicity;
 - 3) **Quality Assurance Plan** - The TRE Action Plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, as well as mechanisms to detect artifactual toxicity; and
 - 4) **Project Organization** - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE Action Plan and Schedule, the permittee shall implement the TRE with due diligence.
- d. The permittee shall submit quarterly TRE Activities Reports concerning the progress of the TRE. The quarterly TRE Activities Reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and/or suspected pollutant(s) performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;

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- 3) any data and/or substantiating documentation which identifies the pollutant(s) and/or source(s) of effluent toxicity;
- 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
- 5) any data which identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and
- 6) any changes to the initial TRE Plan and Schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE Activities Report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species; testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality (herein as defined below) the permittee may end the TRE. A "cessation of lethality" is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b. The permittee may only apply the "cessation of lethality" provision once.

This provision accommodate situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. "Corrective actions" are herein defined as proactive efforts which eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and/or effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and/or an appropriate control measure.

- g. The permittee shall complete the TRE and submit a Final Report on the TRE Activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE. The report shall specify the control mechanism(s) that will, when implemented, reduce effluent toxicity as specified in item 5.g. The report will also specify a corrective action schedule for implementing the selected control mechanism(s). A copy of the TRE Final Report shall also be submitted to the U.S. EPA Region 6 office.
- h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 30 TAC 307.6.(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in their pursuit of the TIE/TRE and must prove that circumstances beyond their control stalled the TIE/TRE.

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The requirement to comply with 30 TAC 307.6(e)(2)(B) may be exempted upon proof that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g. metals) form a salt compound. Following the exemption, the permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.

- i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, to require a compliance schedule for implementation of corrective actions, to specify a WET limit, to specify a BMP, and/or to specify a CS limit.

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TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN*						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____ % effluent

95% confidence limits: _____

Method of LC50 calculation: _____

* If 24-hour survivorship data from the chronic *Ceriodaphnia dubia* test is being used, the mean survival per dilution for all 10 replicates shall be reported on this row.

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TABLE 2 (SHEET 2 OF 2)
FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time (am/pm)	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent (%)					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____ % effluent

95% confidence limits: _____

Method of LC50 calculation: _____

APPENDIX B

SUPPLEMENTAL ENVIRONMENTAL PROJECT

Storm Water Solids Removal SEP at ConocoPhillips' Petroleum Refinery in Borger, Texas

1. The intent of this project is to redirect uncontaminated storm water and "clean" solids (*i.e.*, dirt in storm water runoff) within process areas at ConocoPhillips' Borger refinery, thereby reducing the amount of solids in the oily water treatment system that would otherwise become a listed hazardous waste under the Resource Conservation and Recovery Act (RCRA). In addition, this project is expected to improve water quality by routing storm water to a large impoundment, allowing the deposition of sediment before storm water is discharged from the refinery's storm water outfall 004 to Dixon Creek. ConocoPhillips shall perform the following activities described herein.

2. ConocoPhillips shall implement a SEP, as described in Paragraph 21 of the Consent Decree and in accordance with all provisions of this Appendix B, that includes the design and implementation of a storm water solids removal project at its petroleum refinery in Borger, Texas at an estimated cost of \$600,000. ConocoPhillips shall complete this SEP within 360 days of the Date of Entry. This project shall seek to reduce the amount of hazardous waste generated in the oily water treatment system, to reduce the amount of sediment accumulated in the storm water surface impoundment prior to being discharged from storm water outfall 004 to Dixon Creek, and shall include the following in Area C (process units located in the southeastern section of the refinery, commonly referred to as the GOHDS unit): (1) installation of junction boxes, gate valves, and piping to re-direct uncontaminated storm water and clean solids away from the oily treatment system; (2) use of six-inch standard curbing and six-inch concrete berm to contain incidental releases and direct them to the oily water sewer; and (3) installation of

additional gate valves, catch basins, and piping to divert surface water flow to the oily water sewer in the reactor area during maintenance events. This project shall also include the following in Area P (tank battery located in the northeast section of the refinery in unit 68.1): (1) boring new storm water piping through the dike walls which will allow storm water to be inspected and drained as surface flow; and (2) installation of new concrete catch basins, concrete headwall, and knife gate valves to remedy erosion near the existing dike outfall. ConocoPhillips estimates that 18,300 lbs/year of solids will be removed from accumulating and/or being discharged to their storm water outfall 004.

3. Within 30 days of the Date of Entry, ConocoPhillips shall establish an escrow account and fund the account in the amount of \$600,000, the principal and any interest of which will be used to implement the SEP after payment of the escrow agent's fees and costs. Any costs expended for this SEP from the escrow account will be approved by ConocoPhillips as related to the SEP. Upon demand for stipulated penalties for this SEP, the remainder in the escrow account shall be applied in the first instance toward satisfying such stipulated penalties.

4. Defendant shall obtain any necessary permits to construct and implement the Storm Water Solids Removal Project at the refinery it operates in Borger, Texas described in Paragraph 21 of the Consent Decree and this Appendix B. Defendant shall design the Storm Water Solids Removal Project to achieve the objectives stated in Paragraph 2 of this Appendix B.

5. The Storm Water Solids Removal Project consists of the completion of the work as described above.